Maryland Health Care Commission

Primary Percutaneous Coronary Intervention (PCI) Programs in Hospitals without On-Site Cardiac Surgery

Quarterly and Annual Data Report

Source: Maryland STEMI (Primary PCI) Data Registry – April 15, 2010
Reporting Period: *January 1, 2009 through December 31, 2009*

This report presents the quarterly data submitted by the thirteen hospitals that have a current waiver from the Maryland Health Care Commission allowing them to provide primary PCI services without having on-site cardiac surgical backup. Each hospital has an unconditional transfer agreement with at least one tertiary institution for any required additional care, including emergent or elective cardiac surgery or PCI, and a transport agreement with at least one emergency medical services provider offering advanced cardiac life support and guaranteeing arrival of the air or ground ambulance within thirty minutes of a request for patient transport.

Under the primary PCI waiver program, hospitals without on-site cardiac surgery may provide PCI services to patients meeting certain eligibility criteria:

- Patients with ST-segment elevation myocardial infarction (or new LBBB or ST-depression V1-V2 compatible with true posterior infarction) who are thrombolytic-eligible or -ineligible;
- Patients with acute myocardial infarction and in cardiogenic shock who the treating physician(s) believe may experience a worse outcome if transferred to a tertiary institution because they are too unstable or because a temporal delay in transfer may be harmful; and
- Patients for whom the primary PCI system was not initially available, who received thrombolytic therapy that subsequently failed. These cases should constitute no more than 10 percent of all cases.

Hospitals that are located in Metropolitan Regional Service Areas must perform at least 49 primary PCI cases annually. In areas of the state where rapid access to a program performing 49 or more cases per year is not available, a hospital must perform a minimum of 36 primary PCI cases annually.

Door-to-balloon (DTB) time is typically recorded as the difference in minutes between the patient's arrival in the hospital's emergency room and the time of first device use. In the registry database, exceptions to this calculation method most commonly occur when the patient arrives with a *history* of chest discomfort but a normal or non-diagnostic initial (first) electrocardiogram (ECG). *If and only if* the first ECG is normal/non-diagnostic *and* is entered into the database for review and confirmation along with a second ECG showing ST-segment elevation myocardial infarction (STEMI), then the date and time of the second (diagnostic) ECG are used as the "door" or "clock start" time to calculate DTB time. This same algorithm is applied to patients already hospitalized: the "door" ECG is the first ECG recorded showing STEMI. All hospitals with a primary PCI waiver granted by the Commission must meet the requirement of having at least 80% of appropriate patients receive primary PCI within 120 minutes. As of January 1, 2010, the new standard for door-to-balloon time is 90 minutes or less for 75% of appropriate patients.

Primary PCI (pPCI) volume[1], median DTB time, and number and percentage of patients by DTB ≤ 120 minutes or > 120 minutes, and DTB ≤ 90 minutes or > 90 minutes at Maryland hospitals performing primary PCI under waivers from the Maryland Health Care Commission, calendar year 2009

1st Quarter 2009 (January 1 – March 31)	Total pPCI Volume	Median DTB (Minutes)	≤ 120 Minutes (N)	≤ 120 Minutes (%)	> 120 Minutes (N)	> 120 Minutes (%)	≤ 90 Minutes (N)	≤ 90 Minutes (%)	> 90 Minutes (N)	> 90 Minutes (%)
Anne Arundel Medical Center	28	107	19	68	9	32	9	32	19	68
Baltimore Washington Medical Center	26	62	26	100	0	0	23	88	3	12
Carroll Hospital Center	18	65	16	89	2	11	14	78	4	22
Franklin Square Hospital Center	22	74	18	82	4	18	13	59	9	41
Frederick Memorial Hospital	30	58	28	93	2	7	26	87	4	13
Holy Cross Hospital	6	70	5	83	1	17	5	83	1	17
Howard County General Hospital	11	81	10	91	1	9	9	82	2	18
Johns Hopkins Bayview Medical Center	17	88	11	65	6	35	9	53	8	47
Saint Agnes Hospital	20	94	17	85	3	15	9	45	11	55
Shady Grove Adventist Hospital	18	81	18	100	0	0	16	89	2	11
Southern Maryland Hospital Center	33	84	26	79	7	21	19	58	14	42
Upper Chesapeake Medical Center	28	88	23	82	5	18	15	54	13	46
Washington County Hospital	21	73	19	90	2	10	18	86	3	14

2nd Quarter 2009 (April 1 – June 30)	Total pPCI Volume	Median DTB (Minutes)	≤ 120 Minutes (N)	≤ 120 Minutes (%)	> 120 Minutes (N)	> 120 Minutes (%)	≤ 90 Minutes (N)	≤ 90 Minutes (%)	> 90 Minutes (N)	> 90 Minutes (%)
Anne Arundel Medical Center	30	83.5	29	97	1	3	21	70	9	30
Baltimore Washington Medical Center	27	60	27	100	0	0	27	100	0	0
Carroll Hospital Center	23	72	22	96	1	4	19	83	4	17
Franklin Square Hospital Center	19	75	18	95	1	5	15	79	4	21
Frederick Memorial Hospital[2]	23	49	21	91	2	9	20	87	3	13
Holy Cross Hospital	19	81	19	100	0	0	15	79	4	21
Howard County General Hospital	27	85	25	93	2	7	15	56	12	44
Johns Hopkins Bayview Medical Center	15	66	15	100	0	0	10	67	5	33
Saint Agnes Hospital	23	84	18	78	5	22	13	57	10	43
Shady Grove Adventist Hospital	29	80	28	97	1	3	22	76	7	24
Southern Maryland Hospital Center	15	84	13	87	2	13	10	67	5	33
Upper Chesapeake Medical Center	39	77	36	92	3	8	23	59	16	41
Washington County Hospital	21	83	19	90	2	10	14	67	7	33

3rd Quarter 2009 (July 1–September 30)	Total pPCI Volume	Median DTB (Minutes)	≤ 120 Minutes (N)	≤ 120 Minutes (%)	> 120 Minutes (N)	> 120 Minutes (%)	≤ 90 Minutes (N)	≤ 90 Minutes (%)	> 90 Minutes (N)	> 90 Minutes (%)
Anne Arundel Medical Center	18	86	16	89	2	11	11	61	7	39
Baltimore Washington Medical Center	17	53	17	100	0	0	16	94	1	6
Carroll Hospital Center	15	55	15	100	0	0	15	100	0	0
Franklin Square Hospital Center	16	67.5	13	81	3	19	11	69	5	31
Frederick Memorial Hospital	25	56	22	88	3	12	21	84	4	16
Holy Cross Hospital	8	80.5	8	100	0	0	6	75	2	25
Howard County General Hospital	16	75.5	15	94	1	6	12	75	4	25
Johns Hopkins Bayview Medical Center	13	84	11	85	2	15	8	62	5	38
Saint Agnes Hospital	17	79	17	100	0	0	16	94	1	6
Shady Grove Adventist Hospital	25	86	24	96	1	4	16	64	9	36
Southern Maryland Hospital Center	23	81	20	87	3	13	15	65	8	35
Upper Chesapeake Medical Center	31	68	28	90	3	10	24	77	7	23
Washington County Hospital	26	83.5	21	81	5	19	17	65	9	35

See footnotes at end of table. Percentages may not total 100 due to rounding.

4th Quarter 2009 (October 1–December 31)	Total pPCI Volume	Median DTB (Minutes)	≤ 120 Minutes (N)	≤ 120 Minutes (%)	> 120 Minutes (N)	> 120 Minutes (%)	≤ 90 Minutes (N)	≤ 90 Minutes (%)	> 90 Minutes (N)	> 90 Minutes (%)
Anne Arundel Medical Center	30	67	29	97	1	3	27	90	3	10
Baltimore Washington Medical Center	32	69	31	97	1	3	27	84	5	16
Carroll Hospital Center	19	76	18	95	1	5	14	74	5	26
Franklin Square Hospital Center	16	76.5	14	88	2	13	13	81	3	19
Frederick Memorial Hospital	28	46	28	100	0	0	28	100	0	0
Holy Cross Hospital[3]	25	84	24	96	1	4	15	60	10	40
Howard County General Hospital	29	74	27	93	2	7	22	76	7	24
Johns Hopkins Bayview Medical Center	12	98	9	75	3	25	5	42	7	58
Saint Agnes Hospital	18	85	17	94	1	6	12	67	6	33
Shady Grove Adventist Hospital	34	62.5	33	97	1	3	29	85	5	15
Southern Maryland Hospital Center	24	79	21	88	3	13	16	67	8	33
Upper Chesapeake Medical Center	26	90.5	22	85	4	15	13	50	13	50
Washington County Hospital[4]	29	67	24	83	5	17	21	72	8	28

January 1, 2009 – December 31, 2009	Total pPCI Volume	Median DTB (Minutes)	≤ 120 Minutes (N)	≤ 120 Minutes (%)	> 120 Minutes (N)	> 120 Minutes (%)	≤ 90 Minutes (N)	≤ 90 Minutes (%)	> 90 Minutes (N)	> 90 Minutes (%)
Anne Arundel Medical Center	106	81	93	88	13	12	68	64	38	36
Baltimore Washington Medical Center	102	61.5	101	99	1	1	93	91	9	9
Carroll Hospital Center	75	67	71	95	4	5	62	83	13	17
Franklin Square Hospital Center	73	74	63	86	10	14	52	71	21	29
Frederick Memorial Hospital	106	50	99	93	7	7	95	90	11	10
Holy Cross Hospital	58	82	56	97	2	3	41	71	17	29
Howard County General Hospital	83	79	77	93	6	7	58	70	25	30
Johns Hopkins Bayview Medical Center	57	84	46	81	11	19	32	56	25	44
Saint Agnes Hospital	78	82	69	88	9	12	50	64	28	36
Shady Grove Adventist Hospital	106	77	103	97	3	3	83	78	23	22
Southern Maryland Hospital Center	95	82	80	84	15	16	60	63	35	37
Upper Chesapeake Medical Center	124	83	109	88	15	12	75	60	49	40
Washington County Hospital	97	75	83	86	14	14	70	72	27	28

[1]pPCI volume – number of patients who had a device (balloon, stent, thrombectomy) used that is designed to open the infarction-related artery. The first device used is almost always a balloon-type device, but occasionally is a thrombectomy device. The above data include all eligible patients and total door-to-balloon time for transferred patients.

[2]Frederick Memorial Hospital performed PCI on one patient who did not meet the inclusion criteria for primary PCI in hospitals without on-site cardiac surgery. The above volume and DTB data exclude this non-STEMI (NSTEMI) patient.

[3]Holy Cross Hospital performed PCI on two patients who did not meet the inclusion criteria for primary PCI in hospitals without on-site cardiac surgery. The above volume and DTB data exclude these non-STEMI (NSTEMI) patients.

[4]Washington County Hospital performed PCI on one patient who did not meet the inclusion criteria for primary PCI in hospitals without on-site cardiac surgery. The above volume and DTB data exclude this non-STEMI (NSTEMI) patient.

All institutions with a primary PCI program must provide primary PCI as routine treatment of choice for all appropriate acute myocardial infarction (AMI) patients 24 hours per day, seven days per week. Six patients received thrombolytic (fibrinolytic) therapy as primary therapy; none of these patients received PCI for failed reperfusion. With four exceptions, all patients undergoing PCI during this reporting period were appropriate for primary PCI in settings without on-site cardiac surgery. Each of the hospitals performing primary PCI services without on-site cardiac surgical backup met the annual requirements for institutional volume and DTB time within 120 minutes for 80 percent of appropriate patients.

During the calendar year, three hospitals performed PCI for patients who were transferred from another facility. Shady Grove Adventist Hospital (SGAH) received within-county transfers from the Shady Grove Adventist Emergency Center, a freestanding medical facility that is located eight miles from the hospital. The emergency center is a part of SGAH administratively and operationally; a memorandum of understanding between Adventist HealthCare, the Montgomery County Fire Rescue Service, and the Maryland Institute for Emergency Medical Services Systems allows inter-facility transports between the center and SGAH's Emergency Department. Upper Chesapeake Medical Center (UCMC) received within-county transfers from Harford Memorial Hospital, which is located about 19 miles from UCMC; both hospitals are members of Upper Chesapeake Health. Southern Maryland Hospital Center (SMHC) received within-county transfers from two hospitals, Fort Washington Medical Center (about 16 miles from SMHC) and Malcolm Grow Medical Center at Andrews Air Force Base (about 6 miles from SMHC; renamed as Joint Base Andrews Naval Air Facility Washington on October 1, 2009).

Primary PCI (pPCI) volume[1], median DTB time[2], and number and percentage of transferred patients by DTB ≤ 120 minutes or > 120 minutes at Maryland hospitals with primary PCI waivers, calendar year 2009

1st Quarter 2009 (January 1 – March 31)	Transfer pPCI Volume	Median DTB (minutes)	≤ 120 Minutes (N)	≤ 120 Minutes (%)	> 120 Minutes (N)	> 120 Minutes (%)
Shady Grove Adventist Hospital	2	85	2	100	0	0
Southern Maryland Hospital Center	2	205	0	0	2	100
Upper Chesapeake Medical Center	9	120	5	56	4	44
2nd Quarter 2009 (April 1 – June 30)						
Shady Grove Adventist Hospital	2	84	2	100	0	0
Upper Chesapeake Medical Center	9	110	7	78	2	22
3rd Quarter 2009 (July 1–September 30)						
Shady Grove Adventist Hospital	5	86	5	100	0	0
Upper Chesapeake Medical Center	3	122	1	33	2	67
4th Quarter 2009 (October 1–December 31)						
Shady Grove Adventist Hospital	5	80	5	100	0	0
Upper Chesapeake Medical Center	7	126	3	43	4	57
January 1, 2009 – December 31, 2009						
Shady Grove Adventist Hospital	14	84.5	14	100	0	0
Southern Maryland Hospital Center	2	205	0	0	2	100
Upper Chesapeake Medical Center	28	119	16	57	12	43

[1]pPCI volume – number of patients who had a device (balloon, stent, thrombectomy) used that is designed to open the infarction-related artery. The first device used is almost always a balloon-type device, but occasionally is a thrombectomy device.
[2]DTB time – time of arrival ("clock start" time) at the first facility to time of PCI (device use) in the receiving facility.